

Sentinel-1 Radar Satellites Map Hurricane Florence Flood



Since making landfall in the US state of North Carolina on 14 September, Hurricane Florence has caused widespread damage and flooding. The Copernicus Sentinel-1 radar mission is being used to map affected areas. Although this mighty hurricane was downgraded to a category 1 storm before it made landfall, the momentum the storm generated on its long trip across the Atlantic remains. Storm surges and flooding are therefore similar to that associated with a category 4 storm.

With lives and property at risk, the Copernicus Emergency Management Service was standing by – even before storm hit land – ready to map the floods to help relief efforts. Using satellite information, the service provides information for emergency response for different types of disasters, including meteorological and geophysical hazards, deliberate

and accidental disasters, humanitarian disasters, and for prevention, preparedness, response and recovery activities.

Advanced radar instruments

Philippe Brunet, European Commission Directorate-General for Enterprise and Industry, commented that with the fleet of Sentinel satellite missions and the Copernicus Emergency Management Service, they are very well placed to help to respond to disasters such as hurricanes. Brunet added that his teams have been on stand-by for several days so that they could produce these maps quickly.

[Sentinel-1](#) is a two-satellite constellation. Each identical satellite carries an advanced radar instrument, which can ‘see’ through clouds and rain. This is essential for mapping weather events such as Hurricane Florence.

Josef Aschbacher, ESA’s director of Earth Observation Programmes, said in response to the activation from the Copernicus Emergency Management Service, ESA specifically planned observations from both Sentinel-1A and Sentinel-1B so that areas in the US affected by the hurricane could be mapped.



The Copernicus Sentinel-1 mission used to map floods resulting from Hurricane Florence. This map shows flooded areas in bright blue near Jacksonville, North Carolina, US, on 15 September 2018 at 11:07 GMT/UTC (07:07 local time).

Mapping large areas

Sentinel-1, with its large-scale mapping capability, is particularly suited to mapping floods over large areas. The first maps showed flooded areas is near Jacksonville and Kinston, North Carolina. The Sentinel-1 satellites, together with other satellites contributing to the Copernicus Emergency Management Service, provide further observations in the days after Florence made landfall. The maps produced by the service are being used by the US Federal Emergency Management Agency, which triggered the activation.

The image contains modified Copernicus Sentinel data (2018)/Copernicus Emergency Management Service, processed by SERTIT.